IOTWMS Monitoring Networks

Dr. Karyono (WG-2 Vice-Chair)
BMKG
karyonosu@gmail.com

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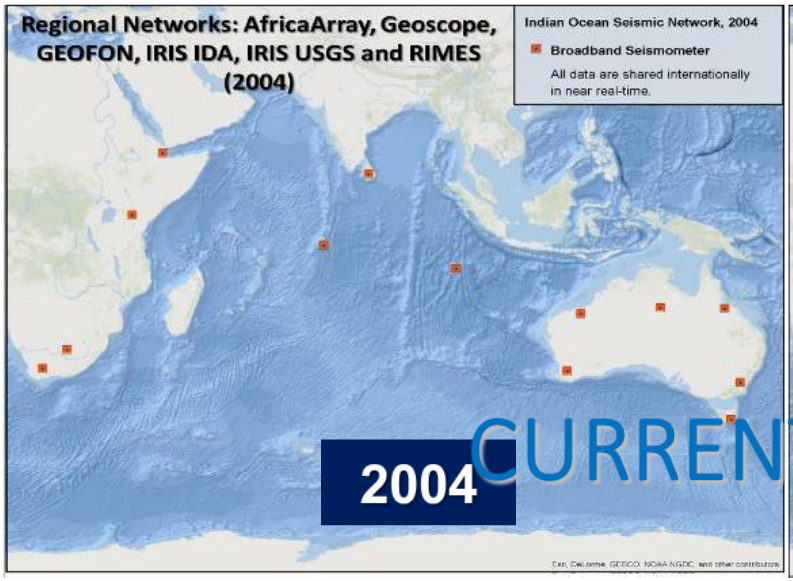
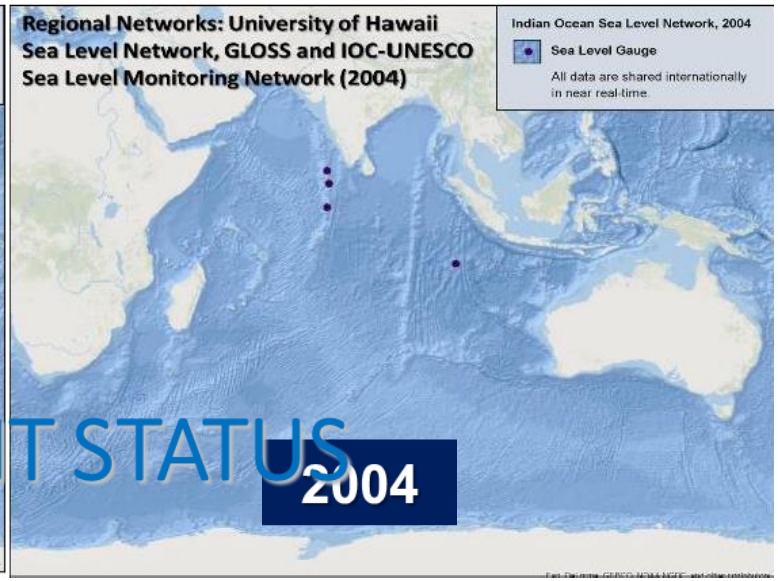
Intergovernmental Oceanographic Commission

Outlines

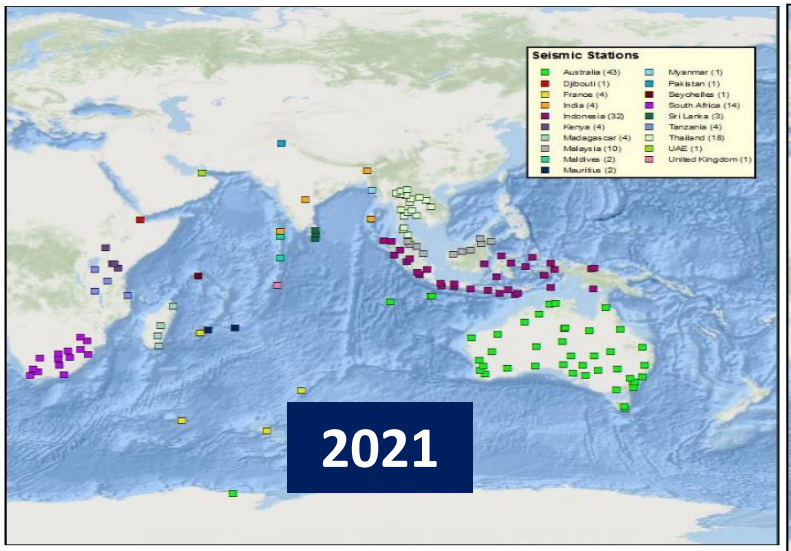
- Current status of Monitoring Networks
- Impact of COVID on Monitoring Networks

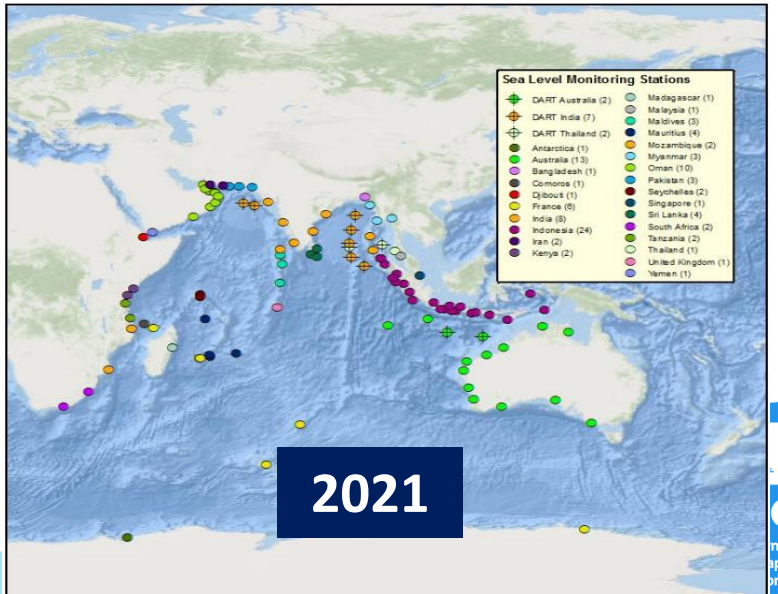
Current Status of Monitoring Networks (taken from ppt of Dr. Pattabhi)





CURRENT STATUS





Impact of Covid-19 on Monitoring Networks Purpose:

- The response to the COVID-19 pandemic is expected to impact IOTWMS seismic, tide gauge and tsunameter networks
- Potential impacts attributed to the pandemic situation are assessed for the monitoring networks.

1. Seismic network

- Ten IOTWMS Member States of Australia, Bangladesh, Indonesia, India, Malaysia, Maldives, Myanmar, Oman, Pakistan, Singapore, as well as nearby Bhutan have reported on potential impacts to seismic networks associated with the COVID-19 pandemic.
- Moreover, global seismic network providers including IRIS/IDS, IRIS/USGS, and GEOFON have provided inputs to the survey

1.1. Operations

- There is *no immediate impact on seismic network* operations as reported by (56%) of the Indian Ocean Member States.
- *Near-term impact* was reported by 24% Member States, 52% reported no impact and 24% reported unknown impact for seismic operations.
- *Long-term impact* was reported by 24% Member States and 32% reported unknown impact. Maintenance for most stations is not expected to be affected since critical travel to remote sites may be allowed for repair and maintaining adequate coverage

2.2. Data

- 56% Member States reported *no immediate impact* and 52% reported *no near-term impact*. 24% Member States reported immediate impact and 28% reported near-term impact on data reception. 44% Member States reported no long-term impact on data reception.
- Most Member States reported no impact to the data quality.

2.3 Procurement

- Procurement activities are *mostly related to the purchase of equipment to provide spare parts for maintenance*. 92% Member States reported *no immediate impact.*
- In the near-term, 76% Member *States reported no impact* and 12% Member States reported impact on the delivery of the ordered spare parts.
- For longer-term, 76% Member *States reported no impact* and 4% reported impact on procurement. The remainder reported no impact due to mitigation measures in place such as deferring new station installation to 2021.

2.4 Risks

- Network Operators were concerned about the potential impact on seismic network operations resulting from prolonged travel restrictions due to COVID-19. thus the potential degradation of the availability of data from some sites in the network.
- the process of determining an earthquake solution. Ultimately, this could lead to an adverse impact on TSPs to meet their performance targets.

2. TIDE GAUGE NETWORKS

IOTWMS Member States of Australia, France (Reunion), India, Indonesia, Malaysia, Mozambique, Myanmar, Oman, Singapore and South Africa have reported on the potential impacts to tide gauge networks associated with the COVID-19 pandemic

2.1 Operations

- Immediate impact was reported by 40% of Member States and 60% reported *no immediate impact to sustain tide gauge network operations*. Key activities being impacted were station maintenance visits.
- Near-term impact is expected by 40% of Member States, 30% expected *no impact* and 30% were unsure.
- Long-term impacts reported by Member States are mostly unknown (60%) with 20% of respondents reporting continued impact, and 20% of respondents assessed the long-term impact as negligible.

2.2 Data

- *No immediate impact* was reported by 60% of all surveyed Member States on continuous data flow and transmission for real time 24 x 7 monitoring.
- *Near-term impact* is reported by 40% Member States, 40% reported no impact and 20% were unsure.
- Long-term impact saw more Member States reporting unknown (50%), 20% reporting an impact and only 30% continuing to report no impact.

2.3 Procurement

- Most member States as against 80% reporting no impact.
- Near-term impact is expected by 40% Member States and 60% reported no impact.
- Long-term impact is expected by 30% Member States, 50% expected no impact and 20% were unsure.

2.4 Risks

- There is risk of uncertainty *associated with maintenance of tide gauges and scheduled on site activities.*

3 TSUNAMETER NETWORKS

3.1 Operations

- Immediate impact on the tsunami buoy network maintenance and servicing was reported by all three Member States.

3.2 Procurement

- There is immediate and near-term impact to one Member State relating to tsunameter procurement.
- near-term impact will be to those *refurbishment and calibration activities, which will be further delayed.*
- Longer-term impacts. In addition, adequate spares will not be available to service the systems in the network.

3.3 Data

- All Member States reported *no immediate impact* to continuous data reception from “functioning” tsunameters.
- Immediate impact on the data transmission and, consequently, data availability due to non-functional tsunami buoy systems maintenance and servicing is affecting one of the three Member States. As a result, 28% of data were missing from that particular Member State.
- Near-term impact is similar to that of the immediate impact in that it affected the same Member State with 28% data loss. Further delay is also expected to the maintenance schedule.
- For the longer-term, the impact is mostly unknown (two out of three Member States).

3.4 Risks

- *It is uncertain whether delivery of new systems from a tsunameter manufacturer within given time frames and time lines is at risk.*

Conclusion

1 Immediate Impacts

- During April 2020, the core seismic, tide gauge and tsunameter monitoring networks of the IOTWMS Tsunami Service Providers (TSPs) *were not substantially impacted by the COVID-19 pandemic.*
- The postponement of regular station maintenance and scheduled deployments of new equipment during the COVID-19 restrictions *has not yet contributed to adverse effects on the networks.*

2 Near-term Impacts

restrictions on travel are anticipated to continue to affect station maintenance and installation programmes of the seismic, tide gauge and tsunameter monitoring networks.

3 Longer-term Impacts

A reduction in the number of functioning seismic monitoring stations would effectively reduce the accuracy of earthquake parameters and lengthen the process of determining an earthquake solution.

Thank you